

In the Claims:

1- 33. (Canceled).

34. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein at least one of a volume of the permeate stream and a concentration of the component of the [[gas]] air flow that is enriched is controlled by lowering the pressure level on the permeate side.

35. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the process is performed in a single-stage.

36. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein a pressure difference between the [[gas]] air flow and the retentate does not exceed 1 bar, [[and]]

37. (Canceled).

38. (Canceled).

39. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the permeate which is enriched is oxygen, the oxygen being enriched to a concentration of 22 to 45 Vol.%.

40. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the membrane separation device used comprises at least one of a pocket module, a plate module and a hollow fiber module.

41. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the [[gas]] air flow is divided in at least two streams and split through at least

one of a plurality of different parallel membrane separation devices and membrane separation units installed in a membrane separation system.

42. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein, before entering the membrane separation unit, the [[gas]] air flow is cleaned of at least one of particles, oils and fat.

43. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein, before entering the membrane separation unit, the temperature of the [[gas]] air flow is changed by about 10° C to 25° C.

44. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein, before entering the membrane separation unit, the [[gas]] air flow is freed of condensable parts.

45. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the separation of the [[gas]] air flow in the membrane separation unit is performed at ambient temperature.

46. (Currently Amended) The membrane separation process according to claim 69, [[29,]] wherein the pressure of at least one of the inlet pressure of the [[gas]] air flow and the outlet pressure of the retentate and the outlet pressure of the permeate is changed in a single-stage.

47-68. (Canceled).

69. (New) A membrane separation process for the enrichment of oxygen in an air flow using a membrane separation system with a membrane separation unit having at least one membrane for separation of the air flow into a retentate, which is discharged on a retentate side of the at least one membrane, and a permeate, which is discharged on a permeate side of the at least one membrane, comprising the steps of:

drawing the air flow into the membrane separation system directly from the atmosphere, compressing the air flow and then delivering the compressed air flow to the membrane separation unit at an absolute pressure of 1.35 to 1.5 bar,

permeating oxygen through the at least one membrane using a solubility-diffusion mechanism so as to enrich the oxygen concentration of the permeate by 22 to 45 volume percent, and

lowering the pressure on the permeate side of the at least one membrane and discharging the permeate from the membrane separation unit at an absolute pressure of 0.4 to 0.85 bar.

70. (New) A membrane separation process for the enrichment of oxygen in an air flow using a membrane separation system with a membrane separation unit having at least one membrane for separation of the air flow into a retentate, which is discharged on a retentate side of the at least one membrane, and a permeate, which is discharged on a permeate side of the at least one membrane, comprising the steps of:

drawing the air flow into the membrane separation system directly from the atmosphere, compressing the air flow and then delivering the compressed air flow to the membrane separation unit at an absolute pressure of 1.35 to 1.5 bar,

permeating oxygen through the at least one membrane using a solubility-diffusion mechanism so as to enrich the oxygen concentration of the permeate by 22 to 45 volume percent, and

lowering the pressure on the permeate side of the at least one membrane and discharging the permeate from the membrane separation unit at an absolute pressure of 0.4 to 0.65 bar.

71. (New) The membrane separation process according to claim 70, wherein the pressure difference between the air flow and the retentate does not exceed 1 bar.

72. (New) The membrane separation process according to claim 70, wherein at least one of a volume of the permeate stream and the oxygen concentration of the air flow that is enriched is controlled by lowering the pressure level on the permeate side [claim 34].

73. (New) The membrane separation process according to claim 70, wherein the oxygen is enriched to a concentration of 30 Vol.%.

74. (New) The membrane separation process according to claim 70, wherein the process is performed in a single-stage.

75. (New) The membrane separation process according to claim 70, wherein the air flow is divided in at least two streams and split through at least one of a plurality of different parallel membrane separation devices and membrane separating units installed in a membrane separation system.

76. (New) The membrane separation process according to claim 70, wherein the membrane separation device used comprises at least one of a pocket module and/or plate module and/or hollow fiber module.

77. (New) The membrane separation process according to claim 70, wherein before entering the membrane separation unit, the air flow is cleaned of at least one of particles, oils and fat.

78. The membrane separation process according to claim 70, wherein before entering the membrane separation unit, the temperature of the air flow changed by about 10 °C to 25 °C.

79. (New) The membrane separation process according to claim 70, wherein before entering the membrane separation unit, the air flow is freed of condensable parts.

80. (New) The membrane separation process according to claim 70, wherein the separation of the air flow in the membrane separation unit is performed at ambient temperature.

81. (New) The membrane separation process according to claim 70, wherein the pressure of at least one of the inlet pressure of the air flow and the outlet pressure of the retentate and the outlet pressure of the permeate is changed in a single-stage.